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Driver Risk Management System

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Abstract: Nowadays we meet lot of accidents. We also heared lot of bus accident, car accident, etc. There are many types of accidents occurring in the world. One of them is due to unconscious of the driver. My project is about the driver who has suddenly got an heart attack while driving the bus. In that case, a sensor will be connected in his hand and a will be fixed in the passengers section. When he gets heart attack, the sensor identifies it and an alarm rings in the passengers section. Then the passengers will get alert and they will stop the bus. By doing this we can avoid accident and also we can save the driver's life.
The detailed study of this will be shown below.
Keywords: Heart attack, accident, mobile app, indicating board, Bluetooth technology.

Introduction:

Our project is about the driver who has suddenly got an heart attack while driving the bus. In that case, a sensor will be connected my project is about the driver who has suddenly got an heart attack while driving the bus. In that case, a sensor will be connected to his mobile app and a indicating board will be fixed in the passengers section. The detailed study of this will be shown below.

Heart Attack:

The heart muscle requires a constant supply of oxygen-rich blood to nourish it. The coronary arteries provide the heart with this critical blood supply. If you have coronary artery disease, those arteries become narrow and blood cannot flow as well as they should. Fatty matter, calcium, proteins, and inflammatory cells build up within the arteries to form plaques of different sizes. The plaque deposits are hard on the outside and soft and mushy on the inside**.**

Symptoms of Heart Attack:

- ➔ CHEST DISCOMFORT
- ➔ DISCOMFORT IN OTHER AREAS OF THE UPPER BODY
- ➔ SHORTNESS OF BREATH
- ➔ OTHER SIGNS

Disorders in Activaton Sequence:

First Degree of Atriovetricular Block:

When the P-wave always precedes the QRS-complex but the PR-interval is prolonged over 0.2 s, first-degree atrioventricular block is diagnosed.

Second Degree of Atrioventircular Block:

If the PQ-interval is longer than normal and the QRS-complex sometimes does not follow the P-wave, the atrioventricular block is of second-degree. the second degree block is called a Wenkebachphenomena.

Third Degree of Atrioventricalar Block:

Complete lack of synchronism between the P-wave and the QRS-complex is diagnosed as third-degree (or total) atrioventricular block. The conduction system defect in third degree AV-block may arise at different locations such as:

- ➔ Over the AV-node
- ➔ In the bundle of His

Bilaterally in the upper part of both bundle branches

Normal Values for Heart Beat:

- RR interval :0.6-1.2 millisec
- P wave :80 millisec
- PR interval :120-20millisec
- PR segment :50-120 millisec
- QRS complex :80-100millisec
- T wave :160 millisec
- ST-segment :80-120millisec

ACIDENTAL CAUSES HUGE LOSS:

- While driver is driving a car or a bus ,if he/she gets heart attack. The will lose their control and it will lead to accident**.**

  For Example:
  IN Chandigar, while driving a bus a driver got heart attack so he lose his control and accident happened. In this incident 5members who were travelling in the bus died

0Working of the Device:

- To rectify this we can find the smart phone app tracks changes in tone of heart attack
- The app works with a sensor worn on the chest or back. Using Bluetooth low energy technology.
- A smart phone app that can tell if users are in danger of having a heart attack by the tone of their voice is being considered for use by the NHS.
- This signal that is sent to your iPhone could automatically notified and warning signal send to passengers section through in. The data collected by the sensor is stored in a cloud-based system. It will also simultaneously place a phone call to your primary contact.

By giving this kind of alertness, we can save the life of the driver.

How Blutoth Works?

Blutooth communicates on a frequency of 2.45 gigahetz .the frequency was allocated for industrial,medical and scientific device.

Accident Cause Due To Heart Attack:

- A driver of a Maharashtra State Road Transport Corporation (MSRTC) suffered heart attack while driving in Kolhapur district, following which the bus veered, causing injuries to 22 passengers, police said.
  "The incident occurred near Navli village in Panhala tehsil. The driver BaburaoSawant lost control of the vehicle after the heart attack and the bus collided against a tree. He was killed, while 22 passengers were injured," police said.
  "The injured persons were admitted to a hospital in Kolhapur while the driver was declared brought dead," a hospital official said. THIS INCIDENT HAS HAPPENED ON 30/07/2016.

How to Stop the Bus (Or) a Car:

A moving bus contains energy, known as kinetic energy, which needs to be removed from the bus in order to cause it to stop. The simplest way of doing this is to convert the energy into heat. The conversion is usually done by applying a contact material to the rotating wheels or to discs attached to the axles. The material creates friction and converts the kinetic energy into heat. The wheels slow down and eventually the bus stops. The material used for braking is normally in the form of a block or pad. The compressed air is transmitted along the bus through a "brake pipe". Changing the level of air pressure in the pipe causes a change in the state of the brake on each vehicle. It can apply the brake, release it or hold it "on" after a partial application.

An alternative to the air brake, known as the vacuum brake, was introduced around the early 1870s, the same time as the air brake. Like the air brake, the vacuum brake system is controlled through a brake pipe connecting a brake valve in the driver's cab with braking equipment on every vehicle. The operation of the brake equipment on each vehicle depends on the condition of a vacuum created in the pipe by an ejector or exhauster. With a full vacuum, the brake is released. With no vacuum, i.e. normal atmospheric pressure in the brake pipe, the brake is fully applied.

The pressure in the atmosphere is defined as 1 bar or about 14.5 lbs. per square inch. Reducing at mospheric pressure to 0 lbs. per square inch, creates a near perfect vacuum which is measured as 30 inches of

mercury, written as 30 Hg. Each 2 inches of vacuum therefore represents about 1 lb. per square inch of atmospheric pressure.

The vacuum in the brake pipe is created and maintained by a motor-driven exhauster. Theexhauster has two speeds, high speed and low speed. The high speed is switched in to create a vacuum and thus release the brakes. The slow speed is used to keep the vacuum at the required level to maintain brake release. It maintains the vacuum against small leaks in the brake pipe.

The vacuum in the brake pipe is prevented from exceeding its nominated level (normally 21 Hg) by a relief valve, which opens at the setting and lets air into the brake pipe to prevent further increase The alarm chain in a passenger coach is designed to create a break in the continuity of the brake pipes (whether vacuum or air brakes), immediately resulting in a loss of brake pressure (or vacuum) and thereby causing the bus brakes to be applied. With vacuum brakes, a clappet valve is provided, which is released by the pulling of the alarm chain; with air brakes, there is a similar passenger emergency valve which can vent the brakepipe to the air.

Advantages:

- By introducing this app we can avoid accidents caused by driver's unconsciousness.
- We can also use this app for car drivers.
- By fixing the GPS we can also identify were this incident has happened

Disadvantages:

- Incase of car ,there must be some other person sitting with the driver orelse we cannot save the life of the driver.

Conclusion:

- Our project aim is to only indicating the alertness to passengers and stop the bus by using the pulling chain .But we request our future engineers especially mechanical to invent a device to stop the bus when the driver is in unconsciousness.

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